

Amendment to the Claims

1. (currently amended) A recombinant adjustable threshold genetic switch comprising:

(a) a first nucleic acid construct comprising an inducible promoter operably associated with a first gene encoding a first repressor protein; and

(b) a second nucleic acid construct comprising a promoter operably associated with a second gene encoding a second repressor protein, wherein transcription from the promoter is active in the absence of a repressor, and

wherein the first repressor protein, when produced, is capable of repressing transcription from the promoter from which transcription is active in the absence of a repressor, and wherein transcription of the first gene encoding the first repressor protein is inducible by an activating agent, and

wherein the second repressor protein, when produced, is capable of repressing transcription from the inducible promoter, and wherein the activating agent induces transcription from the inducible promoter by a mechanism other than inhibiting expression or activity of the second repressor and is required for activity of the inducible promoter.

2. (previously presented) The genetic switch of claim 1, wherein upon exposure to a threshold amount of the agent, the inducible promoter transcribes the first gene to produce the first repressor protein in an amount sufficient to repress transcription from the promoter from which transcription is active in the absence of a repressor.

3. (original) The genetic switch of claim 2, whereby reduction in the amount of the activating agent results in decreased transcription of the first gene encoding the first repressor protein.

4. (previously presented) The genetic switch of claim 3, whereby reduction in the amount of the activating agent results in derepression of the promoter from which transcription is active in the absence of a repressor, thereby increasing transcription of the second gene

encoding the second repressor protein.

5. (previously presented) The genetic switch of claim 1, wherein the inducible promoter, the promoter from which transcription is active in the absence of a repressor, or both the promoters are in operable association with an operator.

6. (original) The genetic switch of claim 1, wherein the first construct further comprises a third gene encoding a protein of interest, wherein the third gene is in operable association with the inducible promoter.

7. (original) The genetic switch of claim 6, wherein transcription of the third gene is increased by the activating agent.

8. (previously presented) The genetic switch of claim 1 or 6, wherein the second construct further comprises a fourth gene encoding a protein of interest, wherein the fourth gene is in operable association with the promoter from which transcription is active in the absence of a repressor.

9. (original) The genetic switch of claim 8, wherein transcription of the fourth gene is repressible by the activating agent.

10. (previously presented) The genetic switch of claim 1, wherein the first and second nucleic acid constructs are comprised within a single contiguous nucleic acid molecule.

11. (currently amended) An isolated [[A]] host cell harboring the genetic switch of claim 1.

12. (currently amended) A host cell harboring the genetic switch of claim 1, The host cell of claim 11, wherein the host cell is a prokaryotic cell.

13. (original) The host cell of claim 12, wherein the prokaryotic cell is *Escherichia coli*.

14. (original) The host cell of claim 11, wherein the host cell is a eukaryotic cell.

15. (original) The host cell of claim 14, wherein the eukaryotic cell is a mammalian cell or a yeast cell.

16 - 28. (cancelled)